

Amendment
March 16, 2006

FIS920030226US1
Serial No.: 10/707,075

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) An integrated circuit (IC) chip with circuits formed thereon, a plurality of chip interconnect pads formed on a surface of said IC chip, one or more of said plurality of chip interconnect pads being an electroplated ~~electroplated~~ pad, said electroplated pad having a plated layer plated to a platable pad, said plated pad including an electrical connection to an underlying strap, said underlying strap extending horizontally from said electrical connection to a chip side wall.
2. (original) An IC chip as in claim 1, wherein each said platable pad is disposed in a cavity in a chip surface and said plated layer is formed in said cavity.
3. (original) An IC chip as in claim 2, wherein said plated layer is a noble metal plated layer and said noble metal is a metal selected from a group consisting of gold, platinum, palladium, rhodium, ruthenium, osmium, iridium and indium.
4. (original) An IC chip as in claim 3, wherein said platable pad is a copper/nickel pad.
5. (original) An IC chip as in claim 4, wherein noble metal is gold.
6. (original) An IC chip as in claim 5, wherein each said electroplated pad includes a barrier metal layer, said barrier metal layer being a non-platable conductive material layer at the perimeter of said electroplated pad and extending upward along a sidewall of said cavity and alongside said noble metal plated layer.

Amendment
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7. (original) An IC chip as in claim 6, wherein said barrier metal is a metal selected from a group consisting of nickel (Ni), tantalum (Ta), tantalum nitride (TaN), titanium (Ti), titanium nitride (TiN), aluminum (Al), tungsten (W), chromium (Cr) and titanium tungsten (TiW).

8. (canceled)

9. (currently amended) An IC chip as in claim 1 [[8]], wherein said underlying strap extends beyond a crack stop ring.

10. (currently amended) An IC chip as in claim 1 [[8]], wherein said underlying strap is a tungsten strap.

11. (currently amended) A semiconductor wafer with a plurality of die locations, each of said die locations being separated from other said die locations by a kerf space, said semiconductor wafer comprising:

a plurality of integrated circuit (IC) chips, each IC chip including a plurality of devices formed on semiconductor surface of said semiconductor wafer ~~substrate~~ in one of said die locations, said devices being wired together into a circuit, selected ones of said devices being connected to one of a plurality of chip pads;

a conductive grid line in each said kerf space;

a conductive ring, each said conductive grid line being connected to said conductive ring; and

a conductive strap connected to one of said plurality of chip pads on said each chip, each of said plurality of chip pads being connected to one said conductive strap, each said conductive strap being connected to an adjacent said conductive grid line, whereby a bias supply current provided to said conductive ring, passes through to each of said plurality of chip pads on said each chip.

Amendment
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Serial No.: 10/707,075

12. (original) A semiconductor wafer as in claim 11, further comprising:
a passivation layer covering said grid lines on an upper surface of said wafer, said conductive ring and at least a portion of said chip pads being exposed beneath said passivation layer.

13. (original) A semiconductor wafer as in claim 12, further comprising:
a pad opening in said passivation layer at each of said chip pads, said pad opening exposing a corresponding one of said chip pads through said passivation layer.

14. (original) A semiconductor wafer as in claim 13, further comprising:
a donut shaped barrier ring at each said pad opening, said corresponding one being exposed through the center of said donut shaped barrier ring.

15. (original) A semiconductor wafer as in claim 13, further comprising:
a plurality of wiring layers between said devices and said chip pads, wiring in said plurality of wiring layers connecting each of said off-chip pads to a corresponding said conductive strap.

16. (original) A semiconductor wafer as in claim 15, wherein conductive grid lines are in a layer between said passivation layer and a pad layer, said semiconductor wafer further comprising:
a conductive stud between each said conductive strap and said adjacent conductive grid line.

17. (original) A semiconductor wafer as in claim 15, wherein said chip pads comprise a copper layer.

18. (original) A semiconductor wafer as in claim 17, wherein said conductive ring and said conductive grid lines are of a conductive material selected from a group of materials consisting of nickel (Ni), Tantalum (Ta), Tantalum Nitride (TaN), Titanium (Ti),

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Titanium Nitride (TiN), Aluminum (Al), Tungsten (W), Chromium (Cr) and Titanium Tungsten (TiW).

19. (original) A semiconductor wafer as in claim 17, wherein said conductive straps are tungsten straps.

20. (original) A semiconductor wafer as in claim 17, wherein said chip pads further comprise a noble metal layer.

21. (original) A semiconductor wafer as in claim 20, wherein said noble metal is gold.

22. (original) A semiconductor wafer as in claim 17, further comprising:
a crack stop ring around each of said plurality of IC chips, said crack stop ring disposed between adjacent said kerf space and an enclosed IC chip.

23 – 28 (canceled)